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WESTERN POLYPORES

BY

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PREFACE

Polypores are tough or woody fungi found chiefly on wood in the form of brackets of various shapes and sizes, the fruiting surface being composed of tubes or furrows. Sometimes the walls of these tubes split with age and the hymenium appears spiny, resembling the hydnums; sometimes the furrows change with age to appear like gills. When the fruit-body is perennial, the tubes are often arranged in layers. The family may be divided into five groups, the resupinates, the annual poroid species, the volvate species, the perennial poroid species, and the agaric-like species. The resupinate species cannot be satisfactorily studied without the advantages of a large herbarium and are therefore omitted here, but some of the larger species of the other groups are comparatively easy.

Polypores as a class are very destructive to trees and timber. On the other hand, one species possesses medicinal properties, some of the encrusted species supply tinder, and several of the more juicy ones are excellent for food if collected when young. The only species recognized as poisonous is the medicinal one, *Fomes Laricis*, and it is so tough and bitter that no one would think of eating it.

Polypores are very easily collected and preserved and they largely retain their characters when dried, which makes them excellent objects for class study during the winter months. Many of them, also, remain *in situ* during the winter in perfect condition for collecting. As a group, they lend themselves remarkably well to studies in gross and minute anatomy, variation, adaptation, and injurious effects on trees and structural timbers.

North America may be conveniently divided into five regions: (1) eastern Canada and the northern United States southward to the southern boundaries of Virginia, Kentucky, Missouri, and Kansas, and westward to the western boundaries of Kansas, Nebraska, and the Dakotas; (2) the southern United States,

including North Carolina, South Carolina, Tennessee, Arkansas, Oklahoma, Texas, Louisiana, Mississippi, Alabama, Georgia, and the northern portion of Florida; (3) the Rocky Mountain region, including the remainder of the western United States and Canada with the exception of states bordering on the Pacific Ocean; (4) the far West, including California, Oregon, Washington, British Columbia, and Alaska; and (5) tropical North America, including Mexico, Central America, southern Florida, the Bermudas, the West Indies, and all other islands between North America and South America with the exception of Trinidad.

In all these regions, there is an abundance of work still to be done before our knowledge of the polypores is complete, and it is believed that the publication of a series of books treating the species of each region separately will stimulate effort in this direction.

The terms here used to express the abundance of a species are "rare" or "occasional," "rather frequent," "frequent," "rather common," "common," "very common," and "extremely common." For the sake of brevity, certain liberties have been taken with the term "brown," especially in the keys, where it is often used as a general term for some shade of yellowish-brown or brown. In the same way, allowances must be made for the term "throughout" when used to indicate occurrence, which does not imply the actual presence of a given species on every snowcapped mountain or every treeless prairie within the region.

The author visited the Pacific coast in the autumn and winter of 1911 and obtained a representative collection of the polypores occurring there. Additional collections by Zeller, McMurphy, Harper, House, Abrams, Oleson, Hedgcock, Humphrey, Graves, Meinecke, Owens, and the instructors and students of the botanical department of the University of California have added much to our knowledge of the western species and their distribution. The older literature relating to the region is comparatively worthless because most of the specimens are lost.

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WESTERN POLYPORES

Including the pileate species occurring in California, Oregon, British Columbia, and Alaska.

POLYPORACEAE

Hymenophore annual or perennial; context fleshy-tough, corky, or woody; hymenium poroid or lamelloid, fleshy to woody, never gelatinous.

Hymenium porose.
- Hymenophore annual.
  - Volva wanting. — Tribe 1. POLYPOREAE.
  - Volva present. — Tribe 2. VOLVATAE.
- Hymenophore perennial.[1] — Tribe 3. FOMITEAE.

Hymenium furrowed.[2] — Tribe 4. DAEDALEAE.

Tribe 1. POLYPOREAE. Hymenophore variable in size and shape, fleshy-tough to corky, annual, sometimes reviving; surface encrusted or anoderm, glabrous or hairy, zonate or azonate; context fibrous, rarely punky, variously colored; tubes cylindric, sometimes splitting into teeth, usually thin-walled; spores rounded or oblong, brown or hyaline; cystidia frequently present; surface of pileus never conidia-bearing; stipe often present, variously attached.

Context white.
- Hymenophore sessile.
  - Pileus very soft, spongy, and elastic throughout. — 3. SPONGIPORUS.
  - Pileus more or less firm, flexible or rigid.
    - Context duplex, spongy above, firm below; surface sodden and bibulous. — 5. SPONGIPELLIS.
    - Context not duplex as above.
      - Pileus fleshy-tough to woody and rigid.
        - Hymenium more or less smoke-colored at maturity. — 6. BJERKANDERA.
        - Hymenium white or pallid. — 4. TYROMYCES.
      - Pileus thin, leathery, and more or less flexible; surface usually zonate.
        - Hymenophore normally pileate; tubes small and nearly always regular. — 1. CORIOLUS.
        - Hymenophore semiresupinate; tubes large and irregular. — 2. CORIOLELLUS.

[1] Exceptions occur in species of *Ganoderma* and *Fomes*. *Porodaedalea* is closely related to the Daedaleae.

[2] *Cerrena* shows an irpiciform hymenium at maturity, much resembling species of *Coriolus*. *Daedalea* and *Gloeophyllum* sometimes show poroid forms that are very confusing.

Hymenophore stipitate.
Plants fleshy, terrestrial. 8. SCUTIGER.
Plants tough, epixylous. 7. POLYPORUS.
Context bright-colored, yellow or red; hymenophore sessile.
Pores red or reddish.
Context soft and spongy. 9. AURANTIPORELLUS.
Context firm.
Tubes fragile; surface anoderm. 10. PYCNOPORELLUS.
Tubes firm and regular; surface pelliculose. 11. PYCNOPORUS.
Pores yellow; plants very large. 12. LAETIPORUS.
Context brown.
Hymenophore sessile.
Spores hyaline.
Context light-brown.
Context at first fleshy, becoming slightly corky. 15. ISCHNODERMA.
Context tough from the first.
Surface glabrous or nearly so. 14. HAPALOPILUS.
Surface distinctly hairy. 13. FUNALIA.
Context dark-brown, friable. 17. PHAEOLUS.
Spores brown. 16. INONOTUS.
Hymenophore stipitate.
Spores hyaline. 17. PHAEOLUS.
Spores brown. 12. COLTRICIA.

Tribe 2. Volvatae. Hymenophore corky to woody, annual; surface smooth, encrusted; context corky; tubes cylindric, concealed at first by a volva, which is perforated at one or more points at maturity; spores hyaline.

Pileus sessile, subglobose, white or slightly reddish-brown. 19. CRYPTOPORUS.

Tribe 3. FOMITEAE. Hymenophore large, woody, perennial, rarely small or annual; surface anoderm or encrusted, usually sulcate, sometimes varnished; context punky or woody, variously colored; tubes cylindric, usually thick-walled; spores rounded, smooth or verrucose, hyaline or brown; cystidia frequently present; surface of pileus conidia-bearing in a few species; stipe rarely present, the hymenophore usually being sufficiently elevated by its host. Annual forms and species in a few genera connect this group with the Polyporeae; while the tendency at times to produce a daedaleoid hymenium, shown especially in *Porodaedalea*, connects it with the Daedaleae.

Surface of hymenophore covered with reddish-brown varnish; context punky to corky. 25. GANODERMA.
Surface of hymenophore not as above.
Context white, flesh-colored, or wood-colored. 20. FOMES.
Context brown or latericeous.
Surface not encrusted; or, if so, context woody.
Hymenium porose. 21. PYROPOLYPORUS.
Hymenium porose-daedaleoid. 22. PORODAEDALEA.
Surface encrusted; context punky.
Spores hyaline or subhyaline. 23. ELFVINGIELLA.
Spores decidedly brown. 24. ELFVINGIA.

Tribe 4. DAEDALEAE. Hymenium annual, very rarely perennial, coriaceous to woody, variable in size; surface anoderm, hairy or glabrous, variously marked; context white or brown, fibrous, woody, or punky; hymenium exceedingly variable, normally labyrinthiform or lamelloid, but often poroid or even irpiciform, never stratified; spores smooth, brown or hyaline. Poroid and irpiciform plants of this group are difficult to separate from certain species of Polyporeae, forms of *Daedalea confragosa* in particular being troublesome to the beginner. On the other hand, there is little to cause confusion between this group and the Fomiteae, if we except the single distinctly perennial species of *Daedalea* and the daedaleoid forms of *Porodaedalea*.

Context white or wood-colored.
- Hymenium labyrinthiform, often becoming lamellate or irpiciform.
  - Hymenium very soon becoming irpiciform. 26. CERRENA.
  - Hymenium rarely becoming irpiciform and then not until maturity. 27. DAEDALEA.
- Hymenium lamellate from the first, not becoming irpiciform. 28. LENZITES.

Context brown. 29. GLOEOPHYLLUM.

1. CORIOLUS Quél.

Hymenophore annual, epixylous, sessile, usually zonate, anoderm, hairy or glabrous; context thin, white, flexible, fibrous, leathery; tubes thin-walled, white, at length splitting into irpiciform teeth in several species, mouths polygonal or irregular; spores smooth, hyaline.

Surface of pileus zonate.
- Tubes more or less entire, at least until the hymenophore is quite old.
  - Surface marked at maturity with conspicuous glabrous zones of different colors. 1. *C. versicolor*.
  - Surface clothed entirely with a conspicuous hairy covering. 2. *C. nigromarginatus*.
- Tubes soon breaking up into long, irpiciform teeth. 3. *C. abietinus*.

Surface azonate, smooth, subglabrous, white. 4. *C. washingtonensis*.

1. CORIOLUS VERSICOLOR (L.) Quél.

Pileus densely imbricate, very thin, dimidiate, conchate, 2–4 × 3–7 × 0.1–0.2 cm.; surface smooth, velvety, shining, marked with conspicuous, glabrous zones of various colors, mostly latericeous, bay, or black; margin thin, sterile, entire; context thin, membranous; tubes punctiform, less than 1 mm. long, white to isabelline within, mouths circular to angular, regular, even, 4–5 to a mm., edges thick and entire, becoming thin and dentate, white, glistening, at length opaque-isabelline or slightly umbrinous; spores allantoid, 4–6 × 1–2 μ.

Common throughout on various forms of dead deciduous wood and rarely on coniferous wood. It causes a serious root-rot in many trees.

2. CORIOLUS NIGROMARGINATUS (Schw.) Murrill

Pileus confluent-effused, more or less imbricate, dimidiate, applanate, corky-leathery, rather thick, flexible or rigid, 3–5 × 5–8 × 0.3–0.8 cm.; surface conspicuously hirsute, isabelline to cinereous, concentrically furrowed and zoned; margin at length thin, often fuliginous, sterile, finely strigose-tomentose, entire or undulate; context white, thin, fibrous, spongy above, 1–4 mm. thick; tubes white, 1–2 mm. long, mouths circular to angular, 4 to a mm., quite regular, edges thin, firm, tough, entire, white to yellowish or umbrinous; spores cylindric, slightly curved, 2.5–3 μ.

Common throughout on dead deciduous wood, and found at times on coniferous wood.

3. CORIOLUS ABIETINUS (Dicks.) Quél.

Pileus effused-reflexed, the reflexed portion thin, tough, flexible to nearly rigid, 0.5–1.5 × 1–3 × 0.05–0.1 cm.; surface obsoletely zonate, grayish-white, villose; margin thin, undulate to lobed, fimbriate with age, incurved on drying; context very thin, white, membranous; tubes uneven, irregular, soon becoming irpiciform, mouths variable in size, 2–3 to a mm., edges thin, lacerate-dentate, unequal, pallid or violet, fading with age, somewhat flesh-tinted in dried specimens; spores globose, 4.5–5.5 μ.

Common throughout on decaying coniferous trunks. This species also occurs in Japan and the Philippine Islands.

4. CORIOLUS WASHINGTONENSIS Murrill

Pileus small, dimidiate, laterally connate, slightly decurrent behind, sometimes effused, tough, flexible, milk-white throughout, becoming slightly yellowish above on drying, and grayish behind with age, projecting about 5 mm. from the substratum, extending sometimes 10 cm. along cracks in the bark, reaching 5 mm. in thickness behind; surface azonate, smooth, subglabrous, margin undulate or lobed, sterile, rather thick for the genus; context thin, soft, flexible; tubes 1–4 mm. long, corky, mouths regular, glistening, slightly angular, 2 to a mm., edges thin, entire; spores ovoid, 5 × 3.5 μ.

Found once at Seattle, Washington, growing from crevices in the bark of a dead log of *Thuya plicata*.

2. CORIOLELLUS Murrill

Hymenophore small, dry, annual, epixylous, semiresupinate; surface anoderm, usually azonate; context white, thin, fibrous to corky; hymenium concolorous; tubes thin-walled, usually rather large and irregular, dentate, but not irpiciform; spores smooth, hyaline.

Pileus grayish-fuscous, glabrous.	1. *C. Sequoiae.*
Pileus white or pale-isabelline, conspicuously villose or strigose.	2. *C. cuneatus.*

1. CORIOLELLUS SEQUOIAE (Copeland) Murrill

Pileus spongy to corky, rather soft, very variable in shape, effused, confluent, resupinate or narrowly reflexed, imbricate, the reflexed portion glabrous, cinereous-fuscous; context very thin, fuscous; tubes slender, cinereous, 5–7 mm. long, mouths subcircular to angular, cinereous-umbrinous, edges thin, entire to dentate.

Occasional on burnt or decaying wood of *Sequoia sempervirens* in California.

2. CORIOLELLUS CUNEATUS Murrill

Pileus thin, soft, flexible, cuneate to dimidiate, imbricate, often effused, 0.5–1.5 × 1.5–3 × 0.2–0.4 cm.; surface conspicuously villose, strigose behind, azonate or subzonate, white to isabelline; margin thin, tomentose; context white to pale-yellowish, soft and fibrous-spongy, 1–3 mm. thick; tubes short, white to discolored, variable, 1 mm. or less in length, mouths angular to irregular, 1–3 to a mm., edges thin, soft, dentate-lacerate, splitting into sharp teeth, which wear away with age; spores globose, 3–5 μ.

Described from specimens collected in British Columbia by John Macoun on the bark of "giant cedar," and also found in Washington on *Thuya plicata*.

3. SPONGIPORUS Murrill

Hymenophore small, annual, epixylous, sessile, dimidiate, pulvinate; surface white, anoderm to subpelliculose, azonate, soft and elastic; context white, extremely soft and spongy throughout; hymenium rigid, somewhat discolored; tubes large, irregular, thin-walled, lacerate; spores smooth, hyaline.

1. SPONGIPORUS LEUCOSPONGIA (Cooke & Hark.) Murrill

Pileus rather small, dimidiate, conchate, pulverulent, 2–3 × 6–10 × 1.5–2.5 cm.; surface white, anoderm, very soft and spongy, finely tomentose to glabrous; margin rounded, inflexed, sterile, concolorous; context white, extremely soft and spongy, slightly firmer next to the tubes with age, 5–20 mm. thick; tubes large, irregular, 2–4 mm. long, white to discolored and slightly resinous in appearance, mouths angular, irregular, about 2 to a mm., edges thin, entire to lacerate-dentate; spores ellipsoid, 7 × 5 μ.

Occasional on dead coniferous logs in California, usually at high altitudes.

4. TYROMYCES P. Karst.

Hymenophore annual, epixylous, sessile, anoderm, azonate, glabrous or nearly so; context white, fibrous, fleshy to fleshy-tough, rigid and friable when dry; tubes thin-walled, white or yellowish, mouths polygonal; spores smooth, hyaline.

Pileus 10–15 cm. broad.	1. *T. guttulatus.*
Pileus 1–6 cm. broad.	
Surface villose or tomentose.	
Pileus more or less bluish, not effused.	2. *T. caesius.*
Pileus not bluish, effused-reflexed.	3. *T. semipileatus.*
Surface glabrous or nearly so.	
Surface becoming rough from the cracking of the reddish-brown cuticle.	4. *T. cutifractus.*
Surface not becoming rough as above.	
Surface grayish-cinereous or yellowish-white; tubes white or yellowish.	5. *T. chioneus.*
Surface white or hygrophanous, the margin and hymenium pale-rose-tinted.	6. *T. carbonarius.*
Surface and hymenium milk-white, rarely becoming slightly yellowish on drying.	
Pileus 1–2 cm. broad, very thin, entirely sessile.	7. *T. perdelicatus.*
Pileus 2–4 cm. broad.	
Pileus imbricate-sessile, 3–10 mm. thick.	8. *T. Pseudotsugae.*
Pileus substipitate, irregular, 2–3 mm. thick.	9. *T. substipitatus.*

1. TYROMYCES GUTTULATUS (Peck) Murrill

Pileus cespitose or gregarious, broad, applanate, sessile or attached by an attenuate base, cheesy-soft when fresh, rigid and fragile when dry, 5–7 × 10–15 × 0.5–1.5 cm.; surface white or yellowish-white, becoming sordid with age, especially at the margin, glabrous, somewhat uneven, slightly zonate at times, marked with numerous rounded, depressed, watery spots, either

scattered promiscuously or arranged in zones; margin thin, white to discolored, undulate or lobed; context white, cheesy to fragile, 3–8 mm. thick; tubes white, 3–6 mm. long, mouths small, angular, glistening, 4–5 to a mm., white to avellaneous or umbrinous, often sordid-spotted in dried specimens, edges thin, fragile, lacerate; spores globose, 5 μ.

Rare on coniferous stumps and logs in Washington and Oregon. Its taste somewhat resembles that of *Fomes Laricis*, but is milder. Compare *Polyporus alutaceus* Fries.

2. TYROMYCES CAESIUS (Schrad.) Murrill

Pileus dimidiate, imbricate, often narrowly attached, with a prominent umbo, variable in habit and size, soft, spongy when fresh, fragile when dry, 1–2 × 3–6 × 0.5–1.5 cm.; surface sodden, tomentose or villose-tomentose, azonate, murinous or griseous when fresh, becoming caesious or fading to nearly pure-white on drying, often nearly glabrous with age; context white, soft, friable, 5–8 mm. thick; tubes long and slender, 5–10 mm. long, caesious within, collapsing, friable, mouths angular, 3–4 to a mm., edges white or bluish-gray, very thin, dentate to long and sharply lacerate; spores elongate, 5–5.5 × 1.5 μ.

Occasional in Washington and Oregon on dead coniferous wood. It occurs also on deciduous wood.

3. TYROMYCES SEMIPILEATUS (Peck) Murrill

Pileus effused, largely resupinate, suborbicular or laterally elongate, very narrowly reflexed, the reflexed portion 0–1 × 2–5 × 0.3–0.5 cm.; surface white or pale-isabelline, subvillose or scabrous, azonate; margin thin, undulate, sometimes inflexed; context white, fleshy-tough to fragile, 2–4 mm. thick; tubes short, slender, white to yellowish within, mouths minute, circular to slightly angular, scarcely conspicuous, 7 to a mm., edges thin, very even, entire, white to pallid, often bluish-discolored in spots or blotches; spores subglobose, 6–8 μ.

Common on logs and dead branches of alder and maple in Washington, Oregon, and California.

4. TYROMYCES CUTIFRACTUS Murrill

Pileus usually broadly attached and laterally elongate, rarely flabelliform, slightly imbricate at times, 2–3.5×4–6×0.5–0.8 cm.; surface glabrous, white, often rough and unsightly because of the cracked and torn reddish-brown cuticle; context rather thick,

firm, almost woody, but friable, milk-white; tubes slender, 2 or 3 times as long as the thickness of the context, white or yellowish within and without, staining brownish when bruised, mouths glistening, small, quite regular, angular, edges entire, very thin; spores ellipsoid, smooth, hyaline, 6 × 4 μ.

Collected on a much decayed fir log in a virgin forest at Newport, Oregon, and also on a maple log and trunks of *Thuya* and *Pseudotsuga* in Washington. The species is peculiar in having a brownish cuticle, gelatinous in appearance when wet, which breaks up as the pileus develops, leaving the surface very rough and unattractive in appearance, especially when plants are growing in moist situations.

5. TYROMYCES CHIONEUS (Fries) P. Karst.

Pileus imbricate, sessile, dimidiate, convex, 2–4 × 3–6 × 1 cm.; surface sodden, grayish-cinereous or yellowish-white, azonate, smooth, pubescent to glabrous, margin acute but rather thick, entire, concolorous, fertile; context sodden and watery when fresh, with a mild flavor and acid odor, white, homogeneous and fragile when dry, cutting with a smooth surface, 7–10 mm. thick; tubes shorter than the thickness of the context, 2–4 mm. long, white to yellowish within, fragile, mouths even, glistening, angular, sinuous at times, 4 to a mm., white to ochraceous, edges thin, fimbriate-dentate; spores cylindric, curved, 4–5 × 1–2 μ.

Found once on an oak stump at Corvallis, Oregon.

6. TYROMYCES CARBONARIUS Murrill

Pileus quite irregular in shape, varying from flabelliform to broadly sessile and laterally elongate, juicy, tough, fragile when dry, 1 × 1.5–3 × 0.5–1 cm.; surface tomentose to glabrous, uneven, white or hygrophanous, azonate, margin pale-rose-tinted, rather thick, narrowly sterile, undulate, rarely lobed; context white, tough to fragile; tubes equaling the thickness of the context, white within, mouths normally rather regular, subcircular, 4 to a mm., not glistening, edges white or pale-rose-tinted, thin, sometimes irpiciform; spores oblong-ellipsoid, smooth, hyaline, 5 × 1.5–2 μ.

Collected on a burnt red fir log at Seattle, Washington. The tubes may be very irregular at times, with long dissepiments, suggesting *Irpiciporus*. There is a faint roseate hue to the hy-

menium which is quite characteristic and rarely seen in species of this genus and its near relatives.

7. TYROMYCES PERDELICATUS Murrill

Pileus flabelliform to subcircular, varying with its position on the substratum, thin, fragile, milk-white throughout, 1–2 cm. broad; surface finely tomentose to glabrous, scarcely zonate, uneven, margin concolorous, thin, inflexed when dry; context very thin, white, fragile; tubes minute, glistening, mouths angular, subregular, edges very thin, slightly toothed, fragile; spores oblong-ellipsoid, smooth, hyaline, 7 × 3 μ.

This small, snow-white species was collected several times at Seattle, Washington, on fallen dead branches of conifers, and was also found common at Glen Brook, Oregon. The type specimens grew on *Tsuga heterophylla*.

8. TYROMYCES PSEUDOTSUGAE Murrill

Pileus imbricate-sessile, flabelliform to semicircular, 2–3 × 2–3 × 0.3–1 cm.; surface milk-white, subglabrous, azonate or with zones faintly outlined, margin thin, concolorous, narrowly sterile, entire to slightly lobed, inflexed when dry; context thin, white, fragile; tubes varying greatly in length, those behind often reaching nearly 1 cm., mouths large, irregular, edges thin, fragile, toothed, collapsing, white, becoming yellowish on drying; spores ovoid, smooth, hyaline, 5 × 3.5 μ.

Known only from the original specimens collected at Seattle, Washington, on a dead log of *Pseudotsuga taxifolia*.

9. TYROMYCES SUBSTIPITATUS Murrill

Pilei subcespitose, at times united above, irregularly subcircular or flabelliform, depressed, milk-white throughout, 2–4 cm. broad, 2–3 cm. high, 2–3 mm. thick; surface glabrous, uneven, lightly marked with irregular, radiating, raised lines, margin thin, concolorous, sterile, undulate or slightly lobed, slightly blackening when bruised; context fleshy, fragile when dry, very thin; tubes small, regular, fragile, collapsing, edges thin, toothed; spores ovoid, smooth, hyaline, 4 × 2.5 μ; stipe erect, lateral or subcentral, enlarging upward, reticulate on one side, owing to the undeveloped tubes, 1–2 cm. long, 2–4 mm. thick.

Found at Seattle, Washington, on rich soil mixed with humus, but not attached to wood. The species is aberrant, partly on

account of its habit of growing upward from the ground, and might be classed with the stipitate forms of the polypores. It is closely related, however, to *Tyromyces semisupinus*, and may as well be placed in this genus as in any other.

5. SPONGIPELLIS Pat.

Hymenophore annual, epixylous, sessile, dimidiate, simple or imbricate, rather large; surface white, anoderm, sodden and bibulous; context white, duplex, spongy above, firm below; hymenium concolorous, tubes thin-walled; spores smooth, hyaline.

Pileus 10–15 cm. broad; tubes very large, 1–2 mm. broad. 1. *S. unicolor.*
Pileus reaching 6 cm. broad; tubes very much smaller. 2. *S. sensibilis.*

1. SPONGIPELLIS UNICOLOR (Schw.) Murrill

Pileus somewhat imbricate, large and spongy, at length indurate, dimidiate, often ungulate, 5–7 × 10–15 × 3–5 cm.; surface spongy-tomentose, hirtose, azonate, smooth, sordid-white to isabelline or fulvous; margin very thick and rounded, sterile, entire, concolorous; context spongy-fibrous, white, indurate with age, especially below, 1–2 cm. thick; tubes very long, 2–3 cm., white to isabelline within, mouths large, irregular, often sinuous, 1–2 mm. broad, edges thin, fimbriate-dentate to slightly lacerate, white to isabelline, at length bay and resinous in appearance; spores globose, 6–8 μ.

Occasional on diseased trunks of deciduous trees in Oregon.

2. SPONGIPELLIS SENSIBILIS Murrill

Pileus flabelliform-conchate, narrowly attached, tough, very juicy, white throughout, changing color very quickly when bruised or on drying, about 3–4 cm. long, 6 cm. broad, and 1.5–2 cm. thick behind; surface spongy-tomentose, azonate, somewhat uneven, changing at once to melleous when bruised and at length to bay, margin entire, regular, very sensitive to handling, thin, scarcely deflexed on drying; context duplex, white, thick, axonate and friable when dry above, zonate and woody below, changing color like the surface when bruised; tubes about equaling the thickness of the context, small, at first very white and glistening, changing quickly to bay when bruised, mouths circular, even, slightly angular, friable and easily corroded on drying, 4–5 to a mm., edges very thin, long-toothed, becoming lacerate at times; spores ovoid, smooth, hyaline, 5 × 3 μ.

This species was found rather commonly about Seattle, Washington, on fallen logs and branches of red fir in moist situations. At Glen Brook, Oregon, it occurred on *Abies*. It was recently found on pine stumps at Del Monte, California. When touched, it turns at once to honey-yellow and later to bay, and some color approaching bay is usually assumed by all or a portion of the hymenophore on drying. Paper touching the fresh specimens is stained ferruginous and then bay.

6. BJERKANDERA P. Karst.

Hymenophore annual, epixylous, sessile, anoderm, glabrous, azonate, corky; context white, tough or woody, not friable when dry; tubes thin-walled, more or less smoke-colored, mouths polygonal; spores smooth, hyaline.

1. BJERKANDERA ADUSTA (Willd.) P. Karst.

Pileus cespitose-imbricate, decurrent, sometimes effused, conchate, fleshy-tough or corky, somewhat flexible when dry, 2–4 × 4–8 × 0.2–0.4 cm.; surface undulate, indistinctly zonate, especially near the margin, finely tomentose or villose, isabelline with slightly darker markings; margin thin, undulate, sterile, pallid, usually becoming black as though scorched; context fibrous-corky, white, 1–3.5 mm. thick; tubes short, 1 mm. or less long, smoky-white to blackish within, mouths regular, angular, 5–6 to a mm., smoke-colored and pruinose when young, soon becoming grayish-black, edges thin, entire; spores ellipsoid-allantoid, 3–5 × 1.5–2.5 μ.

Occasional on dead deciduous wood in California. This species also occurs at times on coniferous wood.

7. POLYPORUS (Micheli) Paulet

Hymenophore annual, epixylous, small and simple, very rarely large and compound; stipe central, eccentric or lateral, much reduced at times in a few species, often partly or wholly brown or black; surface usually smooth, the margin at times ciliate; context white or yellowish, fibrous, tough to corky; hymenium porose, at times alveolate; spores smooth, hyaline.

Stipe pallid or light-brown, centrally attached, not darker than the pileus.

Pileus ornamented with conspicuous tufts of fibrils.	1. *P. McMurphyi.*
Pileus plainly villose, at length becoming glabrous.	2. *P. Polyporus.*
Pileus glabrous from the first.	3. *P. columbiensis.*

Stipe pallid, eccentric to lateral.
- Pileus white. — 4. *P. osseus.*
- Pileus wood-brown. — 5. *P. Zelleri.*

Stipe wholly or partly black or fuliginous, variously attached, usually darker than the pileus.
- Surface light-colored, isabelline to pale-ochraceous. — 6. *P. elegans.*
- Surface dark-colored, bright-bay to almost black. — 7. *P. fissus.*

1. POLYPORUS MCMURPHYI Murrill, sp. nov.

Pileus subcircular, convex to nearly plane, not at all depressed, solitary, 5–7 × 0.5–1 cm.; surface yellowish-brown, subshining, ornamented with conspicuous tufts of stout, pointed, erect fibrils which are larger near the center; margin rather thin, slightly ciliate, somewhat irregular, inflexed on drying; tubes white, decurrent, somewhat favoloid but very small, the edges thin, slightly collapsing and becoming uneven or toothed with age; spores oblong-ellipsoid or fusiform, smooth, hyaline, pluriguttulate, 10–12 × 4–6 μ; stipe central or slightly eccentric, enlarged above and below, solid, thick, white or whitish, reticulate or hispid over its entire surface, reaching 4 cm. long and 1.5–2 cm. thick.

Type collected on a fallen dead branch of alder at San Francisquito Creek, near Stanford University, California, February 15, 1912, *James McMurphy 166* (herb. Stanford Univ.). Also collected during the winter of 1911 at Point Reyes, California, where it was reported as abundant and edible. The surface of a typical pileus exhibits under a lens an appearance similar to that of a ripe pineapple or to a group of sacks of wheat tied up and standing close together, with the fibrils drawn together in a cluster at the center of each subcircular, convex area formed in the process of drying. The specimens from Point Reyes do not exhibit this character nor is the surface subshining, which may be accounted for by weather conditions or the manner in which the specimens were dried. This species is nearest to *P. fagicola* and *P. hydniceps*.

2. POLYPORUS POLYPORUS (Retz.) Murrill

Pileus circular, convex to plane, slightly umbilicate at times, 2–8 × 0.2–0.4 cm.; surface fuliginous, more rarely yellowish-brown, hispid-squamulose to minutely hispid; margin at first inflexed, thin, fimbriate, often becoming wavy or lobed; context milk-white, membranous, 1–3 mm. thick; tubes adnate, white to pallid, 1–2 mm. long, mouths circular, regular, 2–3 to a mm.,

edges at first thick, becoming thin and often dentate with age; spores cylindric, subcurved, 7–8 × 2–3 μ; stipe central, solid, woody, equal, squamulose, avellaneous, not black at the base, 2–3 cm. long, 3–7 mm. thick.

Reported from California by Harkness. The species occurs on fallen dead wood of deciduous trees.

3. POLYPORUS COLUMBIENSIS Berk.

Pileus circular, very thin, subinfundibuliform, 2.5 × 0.05 cm.; surface brown, very smooth and glabrous, resembling parchment or the skin of an apple; margin thin, acute, straight, undulate; context pallid, membranous; tubes decurrent, very short, dark-brown in the type specimens, mouths minute, angular, 5 to a mm., edges thin, acute; stipe central, slender, concolorous, finely velvety, tough and fibrous, 1–5 cm. long, 3 mm. thick.

Not reported since its original discovery on dead wood on the Columbia River in Oregon.

4. POLYPORUS OSSEUS Kalchbr.

Hymenophore cespitose-multiplex, elastic-tough, at length indurate; pilei subdimidiate, variable in size and shape, convex or depressed, 5 cm. or more broad; surface white, smooth, glabrous; context white, rather thick, with an acid odor, becoming very hard when dry; tubes decurrent, white, becoming discolored, mouths circular, minute, edges at length lacerate; spores 5 μ long; stipe short, arising from a common base and more or less united.

This species occurs on trunks and stumps of larch and certain other trees in Europe, and is occasional in this country in a few states along the Canadian border. It may be looked for in Washington and British Columbia. When dry, it is as hard as a bone, as the name implies.

5. POLYPORUS ZELLERI Murrill, sp. nov.

Pileus flabelliform, nearly plane, imbricate-cespitose, 4–6 × 6–8 × 0.3–0.5 cm.; surface pruinose or slightly innate-fibrillose, becoming glabrous, not shining, isabelline-avellaneous, margin thin, concolorous, subentire, becoming somewhat inflexed and undulate on drying, not ciliate; context white, corky, homogeneous, tubes white or slightly discolored, about 1 mm. long, subcylindric, mouths angular, very minute, edges thin, lacer-

ate-dentate; spores oblong, slightly curved, uniguttulate, smooth, hyaline, 5–5.5 × 2–3.5 μ; stipe lateral, woody, white, marked with the decurrent tubes, very short and expanding into the pileus, 1–2 cm. long, 5–10 mm. thick.

Type collected on dead wood at Seattle, Washington, during the winter and spring of 1911–12, *S. M. Zeller 146* (herb. N. Y. Bot. Gard.). This species resembles *Polyporus varius* of Europe, but it is heavier, has no striations on the surface, and the tubes are more delicate and lacerate.

6. POLYPORUS ELEGANS (Bull.) Fries

Pileus flabelliform to subcircular, scarcely depressed behind, convex or nearly plane, 2–6 × 3–10 × 0.2–1 cm.; surface distinctly radiate-striate, pruinose when young, becoming glabrous and pale-ochraceous at maturity; margin thin, at first inflexed, often becoming wavy or much lobed and folded with age, not ciliate; context white or pallid, corky, 1–5 mm. thick; tubes pale-avellaneous, 1–3 mm. long, cylindric, mouths angular to subcircular, entire, at first white, glistening, pale-umbrinous with age, 4–5 to a mm., edges thin, entire; spores oblong, 7–8 × 3–3.5 μ; stipe eccentric or lateral, rarely central, woody, smooth, pallid above, abruptly black and scutate below, 1–4 cm. long, 2–5 mm. thick.

Common in Oregon and Washington on fallen dead branches of alder and other deciduous trees. Less common southward.

7. POLYPORUS FISSUS Berk.

Pileus flabelliform to subcircular, often depressed at the disk or behind, convex, very variable in size, 5–15 × 7–20 × 0.3–1 cm.; surface glabrous, minutely radiate-striate, bay or fuliginous, rugose on the disk; margin thin, fertile, wavy or lobed, often splitting with age; context corky, pallid, 2–8 mm. thick; tubes white to yellowish-brown, decurrent, 2 mm. long, cylindric, slender, mouths subcircular, very minute, 6–7 to a mm., edges thin, entire, becoming elongate with age; stipe eccentric, varying to central or lateral, usually tapering above, fuliginous to nearly black, pruinose, rugose, 2–6 cm. long, 0.5–2 cm. thick.

Found at Corvallis and Marshfield, Oregon, and also in Washington. Reported from Washington as common on poplar and rare on fir and spruce.

8. SCUTIGER Paulet

Hymenophore simple, terrestrial, annual, mesopous, usually bright-colored; surface anoderm, variously decorated; context white, rarely colored, fleshy to tough, rigid and fragile when dry; hymenium porose, white or colored, tubes thin-walled; spores smooth or rarely echinulate, hyaline.

Surface of pileus uneven, squamose or rugose.	
Pileus 15–25 cm. broad.	1. *S. oregonensis.*
Pileus 5 cm. broad.	2. *S. decurrens.*
Surface of pileus smooth, hispid-tomentose.	3. *S. hispidellus.*

1. SCUTIGER OREGONENSIS Murrill

Pileus ascending, depressed behind, reniform, irregular, fleshy-tough, solitary, 15 cm. wide, 25 cm. long, 3 cm. thick behind; surface dry, dark-fulvous, uniformly and densely imbricate-floccose-scaly, the ends of the scales either slightly upturned or at an angle of 45°, margin concolorous, fertile, lobed or undulate, bay when bruised; context white, nutty, thin, fragile when fresh, with the odor of musty meal when dry; tubes white, tinged with sulfur-yellow when bruised, decurrent, mouths regular, thin-walled, 1 mm. in diameter, edges uneven, toothed; spores ovoid, smooth, hyaline, 8–10 × 5 μ; stipe eccentric, inflated, 7 cm. long, 8 cm. thick, irregular, watery-white to flavous, turning sulfur-yellow when bruised, resembling the pileus above at the point of attachment and not reticulate behind.

This large and handsome species was collected in November, 1911, on a rocky bank among giant red firs to the north of Mill City, Oregon, at an elevation of 1,200 ft. Its nearest relative is *Scutiger retipes*, known only from Alabama, from which it differs in many important characters.

2. SCUTIGER DECURRENS (Underw.) Murrill

Pileus nearly circular in outline, plane or slightly depressed at the center, centrally stipitate, 5 × 5 × 0.5 cm.; surface very thinly encrusted, brown or bay, rough, imbricate-tuberculose; margin thin, concolorous, sharply inflexed when dry; context white, fragile, 3–5 mm. thick; tubes white to alutaceous within, about 2 mm. long, decurrent nearly to the base of the stipe, mouths angular, 2 to a mm., edges rather thin, entire, slightly uneven, white to isabelline; stipe bulbous at the base, tapering above, reticulate, slightly darker than the hymenium, 3 cm. or more long, 1–1.5 cm. thick.

Found only once, growing in soil on the side of a canyon at Pasadena, California.

3. SCUTIGER HISPIDELLUS (Peck) Murrill, comb. nov.

Polyporus hispidellus Peck, Bull. N. Y. State Mus. 5: 649. 1899.

Pileus fleshy-tough, dimidiate to subcircular, convex to plane or slightly depressed, solitary, 5–10 cm. broad; surface pale-fawn-colored or grayish-brown to subfuliginous, clothed with short, stiff, erect hairs, margin entire, concolorous; context white; tubes short, cylindric, white, variable in size, edges, thin uneven, dentate or lacerate; spores fusiform, smooth, hyaline, usually uniguttulate, about 12.5 × 4 μ; stipe lateral or eccentric, often irregular, solid, colored and clothed like the pileus, 2.5–4 cm. long, 1–1.5 cm. thick.

Originally described from the Lake Placid region in the Adirondacks, occurring on roots of trees or buried wood. Occasional northward, extending across the continent from Prince Edward Island to Washington. It differs from *S. radicatus* in its stiff, erect hairs, lateral or eccentric stipe, and small spores.

9. AURANTIPORELLUS Murrill

Hymenophore large, annual, epixylous, effused, immarginate or narrowly reflexed; surface azonate, soft, anoderm and orange-colored when young, becoming slightly encrusted and darker with age; context orange-colored, extremely soft and spongy throughout; tubes orange-colored, very large, thin-walled, irregular, lacerate, fragile; spores smooth, hyaline.

1. AURANTIPORELLUS ALBOLUTEUS (Ellis & Ev.) Murrill

Pileus soft, spongy, effused, laterally connate, narrowly reflexed at times, but usually entirely resupinate, 5–6 cm. broad, 1–4 cm. thick; surface velvety, azonate, orange-colored, becoming slightly encrusted and darker with age; margin thin, reflexed, concolorous; context very soft, spongy, orange-colored, absorbing water to a remarkable degree, 0.5–1.5 cm. thick; tubes annual, light-orange-colored, very large, 1–2 cm. long, mouths irregular, 1–2 mm. in diameter, edges thin, concolorous, somewhat fragile, more pallid on their extreme margin, lacerate with age; spores oblong, 8–12 × 3 μ.

Occasional on dead coniferous logs in Washington.

10. PYCNOPORELLUS Murrill

Hymenophore annual, epixylous, sessile, dimidiate, simple or imbricate, reddish or orange-colored throughout; surface anoderm, margin thin; context thin, friable; tubes thin-walled, fragile, at length lacerate; spores smooth, hyaline or pale-yellowish.

1. PYCNOPORELLUS FIBRILLOSUS (P. Karst.) Murrill

Pileus soft, spongy, fragile when dry, thin, dimidiate, imbricate, 3–5 × 6–8 × 0.5–1 cm.; surface anoderm, orange-colored, fibrillose-tomentose, zonate, at times uneven and sodden in appearance; margin thin, subentire, tomentose, paler; context obscurely zoned, orange-colored, friable when dry, spongy and absorbing water when fresh, 3–5 mm. thick; tubes annual, 3–5 mm. long, pallid to orange-colored, mouths angular, irregular, 1–2 to a mm., edges very thin, pallid and entire when young, at length orange-colored and very lacerate; spores smooth, oblong, hyaline or pale-yellowish, 6–7 × 3–4 μ.

Occasional on *Pseudotsuga*, *Tsuga*, and *Abies* in Washington, especially in the mountains. Reported from Idaho on maple.

11. PYCNOPORUS P. Karst.

Hymenophore annual, sometimes reviving, epixylous, sessile, dimidiate, simple or imbricate, rarely pseudo-stipitate; surface anoderm, slightly pelliculose at times, zonate or azonate, bright- or dull-red; context red, soft-corky to punky; hymenium concolorous, tubes small, firm, thin-walled; spores smooth, hyaline.

1. PYCNOPORUS CINNABARINUS (Jacq.) P. Karst.

Pileus convex-plane, dimidiate, laterally extended, reviving the second season, 4–6 × 5–10 × 0.5–1 cm.; surface azonate, rugulose, pruinose to tomentose, at length glabrous, the color changing from light-orange to cinnabar-red, often fading with age; margin acute, except in large plants, faintly zonate; context floccose, elastic, zonate, reddish; tubes nearly equaling the context, firm, miniatous within, the mouths small, 2–3 to a mm., regular, coccineous, dissepiments rather thin, entire; spores 6–8 × 2–3 μ.

Reported by Harkness as occurring on oak in California.

12. LAETIPORUS Murrill

Hymenophore annual, epixylous, fleshy, anoderm, cespitose-multiplex; context cheesy to fragile, light-colored; tubes thin-

walled, fragile, bright-yellow, mouths irregularly polygonal; spores smooth, hyaline.

1. LAETIPORUS SPECIOSUS (Batt.) Murrill

Hymenophore cespitose-multiplex, 30–60 cm. broad; pileus cheesy, not becoming rigid, reniform, very broad, more or less stipitate, 5–15 × 7–20 × 0.5–1 cm.; surface finely tomentose to glabrous, rugose, anoderm, subzonate at times, varying from lemon-yellow to orange, fading out with age; margin thin, fertile, concolorous, subzonate, finely tomentose, undulate, rarely lobed; context cheesy, very fragile when dry, yellow when fresh, usually white in dried specimens, 3–7 mm. thick; tubes annual, 2–3 mm. long, sulfur-yellow within, mouths minute, angular, somewhat irregular, 3–4 to a mm., edges very thin, lacerate, sulfur-yellow, the color fairly permanent in dried specimens; spores ovoid, smooth or finely papillate, 6–8 × 3–5 μ.

Common throughout on living trunks of most deciduous and evergreen trees, causing a very serious heart-rot. It is one of the best edible fungi.

13. FUNALIA Pat.

Hymenophore annual, epixylous, sessile, dimidiate, often semi-resupinate; surface anoderm, hairy to aculeate; context light-brown, more or less duplex, spongy above, coriaceous to woody below; tubes usually large, thin-walled, more or less lacerate; spores smooth, hyaline.

1. FUNALIA STUPPEA (Berk.) Murrill

Pileus corky to woody, variable in size, dimidiate, decurrent, imbricate, convex above, 2–6 × 5–12 × 0.5–3 cm.; surface ferruginous to fulvous, hirsute to villose, azonate, sulcate at times; margin thin or rounded, concolorous, entire or slightly undulate; context isabelline, zonate, corky to woody, duplex in large specimens, being softer above, 0.3–1.5 cm. thick; tubes rather long, 3–12 mm., whitish-isabelline within, mouths rather variable in size, subcircular to angular, distorted with age, averaging about 1 mm. in diameter, edges thin, fimbriate to toothed, isabelline to fuscous; spores oblong or slightly curved, 11–13 × 3.5–4 μ.

Known from California and British Columbia and doubtless occasional throughout the region on dead poplar and willow trunks.

14. HAPALOPILUS P. Karst.

Hymenophore annual, rarely perennial, epixylous, sessile, dimidiate, simple or imbricate; surface anoderm, rarely pelliculose, zonate or azonate, usually brown and glabrous; context brown, leathery or corky, tough or rarely friable when dry; hymenium usually differently colored, tubes small, thin-walled; spores small, usually ovoid, hyaline.

1. HAPALOPILUS GILVUS (Schw.) Murrill

Pileus corky, dimidiate, imbricate, applanate or conchate, 3–6 × 5–10 × 0.5–1.5 cm.; surface finely tomentose to glabrous, azonate, isabelline to fulvous, often marked with indistinct purplish-fuscous bands, rugulose to uneven; margin thin, ferruginous, entire to undulate, abruptly sterile; context ferruginous, fibrous-spongy to corky, zonate, 3–7 mm. thick; tubes short, slender, avellaneous to grayish-umbrinous within, 3–5 mm. long, often found stratified, especially in the tropics, mouths small, regular, circular to angular, 6–8 to a mm., edges at first thick, pale-ferruginous, becoming thin, entire, glistening, olivaceous-fuscous to purplish-fuscous; spores elongate-ellipsoid, 4–6 × 2–4 μ; cystidia chestnut-colored, ovate-subulate, 15–20 × 4–5 μ.

Found once in California on *Quercus agrifolia*.

15. ISCHNODERMA P. Karst.

Hymenophore large, annual, epixylous, sessile; surface pelliculose, glabrous; context light-brown, fleshy to slightly corky, friable when dry; tubes small, thin-walled; spores smooth, hyaline.

1. ISCHNODERMA FULIGINOSUM (Scop.) Murrill

Pileus very large, subimbricate, laterally connate, effused-reflexed, often covering the entire under surface of logs, the reflexed portion applanate, 5–15 cm. long, 10 to many cm. broad, 1–2.5 cm. thick; surface pelliculose, floccose, rugose, zonate, fuliginous, ivory-black, and dark-fulvous, with a conspicuous resinous appearance; margin acute, concolorous, inflexed on drying, entire or undulate; context fleshy, becoming corky with age, very firm and rather fragile when dry, light-brown, 5–10 mm. thick; tubes pallid to umbrinous, 5–8 mm. long, mouths minute, white, angular, equal, becoming umbrinous and somewhat irregular with age, edges thin, fimbriate to lacerate; spores cylindric, subcurved, 4–6 × 1.5–2 μ.

Frequent northward on dead coniferous logs. This species also occurs on deciduous wood.

16. INONOTUS P. Karst.

Hymenophore annual, epixylous, sessile, dimidiate, simple or somewhat imbricate, variable in size; surface usually anoderm, brown, hairy or glabrous; context brown, thin and fibrous to spongy or corky; hymenium concolorous, usually covered with whitish powder in youth, tubes small, thin-walled; spores smooth, light- to dark-brown.

Hymenophore typically pileate, 10–30 cm. broad.	
Surface conspicuously hirsute.	1. *I. hirsutus.*
Surface glabrous or nearly so.	
Spores pale-brown.	2. *I. dryadeus.*
Spores deep-brown.	3. *I. dryophilus.*
Hymenophore resupinate so far as known.	4. *I. Leei.*

1. INONOTUS HIRSUTUS (Scop.) Murrill

Pileus thick, compact, fleshy to spongy, dimidiate, sometimes imbricate, compressed-ungulate, 7–10 × 10–15 × 3–5 cm.; surface hirsute, ferruginous to fulvous, azonate, smooth; margin obtuse, velvety; context spongy-corky, somewhat fragile when dry, ferruginous to fulvous, blackening with age, 1–1.5 cm. thick; tubes slender, about 1 cm. long, ferruginous within, mouths angular, 2–3 to a mm., ferruginous to bay, blackening with age, edges thin, very fragile, lacerate; spores broadly ovoid, smooth, thick-walled, deep-ferruginous, 2-guttulate, 7–8 × 5–6 μ.

Reported from California by Harkness.

2. INONOTUS DRYADEUS (Fries) Murrill

Hymenophore of immense size, dimidiate, rarely circular, usually imbricate, applanate or depressed above, convex below, fleshy to spongy-corky, rather fragile when dry, 15–30 × 25–65 × 3–5 cm.; surface very uneven, azonate, opaque, hoary-isabelline, anoderm to very thinly encrusted, subshining and bay; margin thick, pallid, entire to undulate, weeping; context thick, zonate, subglistening, ferruginous-isabelline to fulvous, 2.5–4 cm. thick; tubes grayish-umbrinous to fulvous within, 5–15 mm. long, slender, very fragile, mouths whitish when young, becoming somewhat resinous in appearance and finally bay-brown, at first minute, circular, becoming angular, 4 to a mm., edges thin, fimbriate to lacerate, deeply splitting and separating with age;

spores subglobose, smooth, 8–10 × 7–8 μ, the outer wall hyaline, the inner membrane brown; cystidia 15–35 × 5–9 μ.

Occasional in California as a root parasite of various species of oak, the large hymenophores appearing near the base of the trunk. Attention is called to recent studies of this species and the next by W. H. Long.

3. INONOTUS DRYOPHILUS (Berk.) Murrill

Pileus thick, unequal, unguliform, subimbricate, rigid, 7–8 × 10–14 × 2–3 cm.; surface hoary-flavous to ferruginous-fulvous, becoming scabrous and bay with age; margin thick, usually obtuse, sterile, pallid, entire or undulate; context ferruginous to fulvous, zonate, shining, 3–10 mm. thick; tubes slender, concolorous with the context, about 1 cm. long, mouths regular, angular, 2–3 to a mm., glistening, whitish-isabelline to dark-fulvous, edges thin, entire to toothed; spores subglobose, smooth, deep-ferruginous, 6–7 μ; cystidia scanty and short.

Frequent in California and Oregon on living or dead oak trunks, causing serious decay.

4. INONOTUS LEEI Murrill, sp. nov.

Hymenophore resupinate, immarginate, rigid to fragile, effused, 15–40 cm. broad; context fulvous, inconspicuous; tubes 1–3.5 cm. long, slender, cylindric, fulvous, 3–4 to a mm. at the base, larger at the mouths, rather thick-walled, not stratified; mouths ungulate, irregular in size and shape, 1–4 to a mm., citrinous-stuffed, edges thin, becoming slightly toothed and blackish with age; spores subglobose to ellipsoid, smooth, melleous under a microscope, uniguttulate, 6–7 × 5–6 μ; hyphae fulvous, 3.5–4.5 μ; cystidia fulvous, cuspidate, small and variable.

Type collected 15 feet above the ground on a decayed trunk of *Quercus agrifolia* on the University of California campus, Berkeley, California, April, 1914, *H. A. Lee* (herb. N. Y. Bot. Gard.). Also collected on the same host in the same locality by students of the department of botany of the University of California; and on a fallen log of *Quercus agrifolia* at Stanford University, California, March 13, 1912, *James McMurphy 191*. This very interesting anomalous species extends for several square feet over the surface of decaying trunks of the common live oak, which it undoubtedly injures very seriously. It is hoped that pileate specimens will be found so that the description may be completed.

17. PHAEOLUS Pat.

Hymenophore large, irregular, annual, spongy to corky, epixylous; stipe simple, variously attached, wanting at times; surface of pileus anoderm, hispid; context ferruginous; tubes irregular, thin-walled; spores ellipsoid, smooth, hyaline; cystidia none.

1. PHAEOLUS SISTOTREMOIDES (Alb. & Schw.) Murrill

Pileus spongy, circular, varying to dimidiate or irregular, 15–20 cm. broad, 0.5–2 cm. thick; surface setose-hispid to strigose-tomentose and scrupose in zones, ochraceous-ferruginous to fulvous-castaneous or darker, quite uneven, somewhat sulcate, obscurely zonate; margin yellow, rather thick, sterile; context very soft and spongy, fragile when dry, sometimes indurate with age, flavous-ferruginous to fulvous, 0.3–0.7 mm. thick; tubes short, 2–5 mm. long, flavous within, mouths large, irregular, averaging 1 mm. in diameter, edges thin, becoming lacerate, ochraceous-olivaceous to fuliginous, rose-tinted when young and fresh, quickly changing to dark-red when bruised; spores ellipsoid, 7–8 × 3–4 μ; stipe central to lateral or obsolete, very irregular, tubercular or very short, resembling the pileus in surface and substance.

Common throughout, especially northward, on trunks, stumps, and roots of various coniferous trees, causing a very serious reddish-brown rot of the roots and lower part of the trunk.

18. COLTRICIA (Micheli) S. F. Gray

Hymenophore annual, terrestrial or humus-loving, simple, small to medium, usually circular and central-stemmed; surface anoderm, brown, zonate or azonate; context yellowish or brown, coriaceous to spongy; hymenium concolorous, covered with yellowish or whitish powder when young; tubes thin-walled, at length fimbriate; spores smooth, rounded, yellowish-brown; cystidia rarely present.

Pileus 3–6 cm. broad.	1. *C. perennis.*
Pileus 6–12 cm. broad.	2. *C. tomentosa.*

1. COLTRICIA PERENNIS (L.) Murrill

Pileus coriaceous, circular, infundibuliform, 3–6 cm. broad, 1.5–3 mm. thick; surface zonate, short-tomentose, substriate, ferruginous to cinereous, the zones sometimes glabrous and chestnut-colored; margin very thin, entire to lacerate, inflexed when dry; context very thin, concolorous, scarcely a mm. thick;

tubes short, grayish-umbrinous within, 1–3 mm. long, mouths small, angular, 2–4 to a mm., whitish when young, becoming fulvous, edges thin, dentate to lacerate, soon collapsing; spores ovoid, smooth, pale-yellowish-brown, 4–6 × 2–3.5 μ; stipe bulbous and often united with that of neighboring plants at the base, tapering upward, velvety, ferruginous to fulvous, solid, corky, 3–5 cm. long, 2–5 mm. thick.

Rather common throughout on exposed sandy or burnt soil in woods.

2. COLTRICIA TOMENTOSA (Fries) Murrill

Pileus circular, varying to dimidiate, sometimes cespitose, 6–12 cm. in diameter, 3–5 mm. thick; surface ferruginous-fulvous, azonate, rarely subzonate, tomentose, plane or depressed at the center; margin lighter in color, sterile, acute, entire to lobed; context duplex, soft-corky, concolorous and spongy above, corky-woody, fibrous and flavous-ferruginous below, 2–4 mm. thick; tubes sometimes decurrent, about 1 mm. long, avellaneous within, mouths small, equal, angular, 3–5 to a mm., covered at first with a whitish substance, edges white, entire, becoming grayish-umbrinous, very thin and toothed with age; spores ellipsoid, smooth, pale-yellowish-brown, 5–7 × 2–4 μ; cystidia abundant, more or less curved, ovate-lanceolate at first, becoming more slender, fulvous-brown, 50–75 × 6–15 μ; stipe central to lateral or wanting, unequal, obese, fulvous, tomentose, resembling the context within, 0–5 cm. long, 5–15 mm. thick.

Occasional in California on or about dead coniferous stumps.

19. CRYPTOPORUS (Peck) Hubbard

Hymenophore subglobose, sessile, epixylous; surface smooth, encrusted; context white, corky; tubes white, concealed at first by a volva, which is perforated at one or more points at maturity; mouths constricted, discolored; spores smooth, hyaline.

1. CRYPTOPORUS VOLVATUS (Peck) Hubbard

Pileus simple, sessile, rarely spuriously stipitate, globose to ungulate, 2–6 cm. broad, 1.5–3 cm. thick; surface white, sometimes slightly reddish-brown, smooth, slightly viscid or resinous when young, glabrous, marked with anastomosing depressed lines in larger specimens; margin very rounded, concolorous, smooth, produced into a volva covering the tubes, at length ruptured at 1–3 points forming small rounded or irregular apertures; context soft-corky, homogeneous, white, 2–5 mm. thick;

tubes 1–1.5 mm. long, isabelline to umbrinous, mouths angular, yellow with a tinge of cinnamon, 3 to a mm., edges thick, becoming thin, entire; spores oblong, hyaline or pale-flesh-colored, 11–13 × 4–5 μ.

Frequent throughout on dead coniferous trunks. It occurs also in Japan.

20. FOMES Gill.

Hymenophore sessile, ungulate or applanate, epixylous; surface anoderm or encrusted, sulcate, rarely zonate; context white, wood-colored, or flesh-colored, corky or woody, rarely punky; tubes cylindric, usually thick-walled, stratose; spores smooth, hyaline or subhyaline.

Context rosy, light-brown in faded specimens.	1. *F. roseus.*
Context white or nearly so.	
Pileus encrusted; surface darker than the context.	
Pileus thin, distinctly zonate.	2. *F. annosus.*
Pileus thick, ungulate, sulcate.	3. *F. ungulatus.*
Pileus not encrusted; surface concolorous with the context.	
Tubes 3–4 to a mm.; pileus cylindric at maturity.	4. *F. Laricis.*
Tubes 1–3 to a mm.; pileus ungulate at maturity.	5. *F. amarus.*

1. FOMES ROSEUS (Alb. & Schw.) Cooke

Pileus woody, dimidiate, varying from conchate to ungulate, often imbricate and longitudinally effused, 2–4 × 6–30 × 0.5–3 cm.; surface rugose, subfasciate, slightly sulcate, rosy or flesh-colored, becoming gray or black with age; margin acute, becoming obtuse, sterile, pallid, often undulate; context floccose-fibrous to corky, rose-colored, 0.2–2 cm. thick; tubes indistinctly stratose, 1–2 mm. long each season, mouths circular, 3–4 to a mm., edges obtuse, concolorous; spores ellipsoid, smooth, thick-walled, subhyaline, 3.5 × 6 μ.

Common throughout on living or dead trunks of conifers, causing a serious rot. The variation in the form of the hymenophore from conchate to ungulate is sometimes very puzzling.

2. FOMES ANNOSUS (Fries) Cooke

Pileus woody, dimidiate, very irregular, conchate to applanate, 10–13 × 5–8 × 0.5–2 cm.; surface at first velvety, rugose, anoderm, light-brown, becoming thinly encrusted, zonate, and finally black with age; margin pallid, acute, becoming thicker; context soft-corky to woody, white, 0.3–0.5 cm. thick; tubes unevenly stratified, 2–8 mm. long each season, white, mouths subcircular to irregular, 3–4 to a mm., edges rather thin, entire,

firm, white, unchanging; spores subglobose or ellipsoid, smooth, hyaline, 5–6 × 4–5 μ.

Frequent throughout on trunks and roots of various coniferous trees, and rarely on deciduous trees, causing serious decay. The hymenophores of this species usually occur in inconspicuous places.

3. FOMES UNGULATUS (Schaeff.) Sacc.

Pileus corky to woody, ungulate, 8–15 × 12–40 × 6–10 cm.; surface glabrous, sulcate, reddish-brown to gray or black, often resinous; margin at first acute to tumid, pallid, becoming yellowish or reddish-chestnut; context woody, pallid, 0.5–1 cm. thick; tubes distinctly stratified, 3–5 mm. long each season, white to isabelline, mouths circular, 3–5 to a mm., edges obtuse, white to cream-colored; spores ovoid, smooth, 6 μ.

Common throughout on living trunks of conifers and less frequent on deciduous trees growing near, causing a serious disease.

4. FOMES LARICIS (Jacq.) Murrill

Pileus firm, at length fragile, ungulate to cylindric, 3–8 × 5–10 × 4–20 cm.; surface anoderm, powdery, white or slightly yellowish, concentrically sulcate, becoming slightly encrusted, tuberculose and rimose; margin obtuse, concolorous; context soft, tough, at length friable, chalk-white or slightly yellowish, very bitter, with the odor of fresh meal, 1–3 cm. thick; tubes evenly stratified, concolorous, 5–10 mm. long each season, mouths circular to angular, 3–4 to a mm., edges thin, fragile, white, becoming discolored and lacerate, wearing away with age; spores ovoid, 5 × 4 μ.

Frequent throughout on dead or decayed trunks of fir, red fir, spruce, hemlock, and pine. This species is much more abundant in Europe and is there used in medicine because of the bitter, resinous substance it contains.

5. FOMES AMARUS (Hedgcock) Murrill, comb. nov.

Polyporus amarus Hedgcock, Mycologia 2: 155. 1910.

Pileus soft and spongy when young, becoming hard and chalky when old, ungulate, often spuriously stipitate from knot-holes, frequently large, 5–11 × 10–20 × 6–12 cm.; surface pubescent when young, rimose and chalky when old, at first buff, becoming tan and often blotched with brown when older; margin obtuse, frequently having an outer band of darker brown, often slightly

furrowed; context creamy-yellow to tan-colored, usually darker in outer layers when old, bitter to the taste and often resinous near the base, somewhat like *Fomes Laricis* (Jacq.) Murrill, 4–8 cm. thick; tubes not stratified, brown within, cylindric, 0.5–3 cm. in length, shorter next to the margin, mouths circular or slightly irregular, 1–3 to a mm., yellow or yellow-green during growth, turning brown when bruised or old, becoming lacerate; spores hyaline or slightly tinged with brown, smooth, ovoid, 5–8 × 3–4 μ, nucleated; cystidia none.

Common throughout California and Oregon, causing the serious "pin-rot" or "peckiness" of the incense cedar, *Libocedrus decurrens*. The hymenophores are not very often seen, but the rot is common, often affecting as high as 100 per cent. of the incense cedar trees of a given area.

21. PYROPOLYPORUS Murrill

Hymenophore large, perennial, epixylous, sessile, ungulate or applanate; surface sulcate, usually anoderm and often rough or rimose; context woody or punky, brown; tubes brown, cylindric, stratose, usually thick-walled; spores smooth, hyaline.

Margin of pileus at first ferruginous; context fulvous, opaque. 1. *P. igniarius.*
Margin of pileus at first melleous; context isabelline, lustrous. 2. *P. Abramsianus.*

1. PYROPOLYPORUS IGNIARIUS (L.) Murrill

Pileus woody, ungulate, sessile, 6–7 × 8–10 × 5–12 cm.; surface smooth, encrusted, opaque, velvety to glabrous, ferruginous to fuscous, becoming black and rimose with age; margin obtuse, sterile, ferruginous to hoary, tomentose; context woody, distinctly zonate, ferruginous to fulvous, 2–3 cm. thick; tubes evenly stratified, 2–4 mm. long each season, fulvous, whitish-stuffed in age, mouths circular, minute, 3–4 to a mm., edges obtuse, ferruginous to fulvous, hoary when young; spores globose, smooth, hyaline, 6–7 μ; cystidia 10–25 × 5–6 μ.

Found on living willow trunks near Tacoma, Washington, and Eugene, Oregon; also on *Ceanothus* at Grass Valley, California. It causes a very serious heart-rot.

2. PYROPOLYPORUS ABRAMSIANUS Murrill, sp. nov.

Pileus woody, ungulate or triquetrous, broadly attached, subimbricate, 3–4 × 6–8 × 4–6 cm.; surface finely tomentose to glabrous, smooth, melleous, becoming gray or fuliginous, not

rimose; margin conspicuously obtuse and rounded, concolorous with the younger parts of the surface; context woody, zonate, melleous to dark-luteous, with a silky luster; tubes rarely stratified, not separated by layers of context, variable in length, avellaneous, whitish-stuffed, mouths subcircular, 4–5 to a mm., edges obtuse, entire, melleous to fulvous; spores broadly ellipsoid or subglobose, hyaline, uniguttulate, smooth, 7–8 × 5–6 μ; cystidia none.

Type collected on a willow stump near Cedro Cottage Bridge on San Francisquito Creek, near Stanford University, California, November 22, 1902, *A. C. Herre* (herb. N. Y. Bot. Gard.). This species is remarkably like *Pyropolyporus texanus* in form and general appearance, but the tubes and spores are different, as well as the host. It has been found but once.

22. PORODAEDALEA Murrill

Hymenophore large, perennial, epixylous, sessile, conchate to ungulate; surface anoderm, sulcate, usually rough; context brown and woody; tubes concolorous, rarely in distinct layers, the hymenium varying from porose to daedaleoid; spores smooth, hyaline at maturity, becoming brownish with age; cystidia conspicuous.

1. PORODAEDALEA PINI (Thore) Murrill

Pileus hard, typically ungulate, conchate or effused-reflexed in varieties, often imbricate, 5–8 × 7–12 × 5–8 cm., smaller in varieties; surface very rough, deeply sulcate, tomentose, tawny-brown, becoming rimose and almost black with age; margin rounded or acute, tomentose, ferruginous to tawny-cinnamon, entire, sterile in large specimens; context soft-corky to indurate, ferruginous, 5–10 mm. thick, thinner in small specimens; tubes stratified, white to avellaneous within, becoming ferruginous at maturity and in the older layers, 5 mm. long each season, much shorter in thin specimens, mouths irregular, circular or daedaleoid, often radially elongate, averaging 1 to a mm., edges ferruginous to grayish-umbrinous, glistening when young, rather thin, entire; spores subglobose, smooth, hyaline at maturity, becoming brownish with age, 5–6 × 3–4 μ; cystidia abundant, short, 25–35 × 4–6 μ.

Very common throughout on living trunks of conifers, causing a serious heart-rot. The variation in the shape of the hymenophores is exceedingly confusing. Müller recently confirms

Hartig's statement that this species also causes a dry rot in pine and fir.

23. ELFVINGIELLA Murrill

Hymenophore large, epixylous, sessile, applanate or ungulate; surface sulcate, horny-encrusted; context brown, punky; tubes brown, cylindric, stratose, thick-walled; spores smooth, hyaline or subhyaline.

1. ELFVINGIELLA FOMENTARIA (L.) Murrill

Pileus hard, ungulate, concave below, 7–9 × 8–10 × 3–10 cm.; surface finely tomentose to glabrous, isabelline to avellaneous and finally black and shining with age, zonate, sulcate, horny-encrusted; margin obtuse, velvety, isabelline to fulvous; context punky, ferruginous to fulvous, conidia-bearing, 3–5 mm. thick; tubes indistinctly stratified, not separated by layers of context, 3–5 mm. long each season, avellaneous to umbrinous within, mouths circular, whitish-stuffed when young, 3–4 to a mm., edges obtuse, entire, grayish-white to avellaneous, turning dark when bruised; spores globose, smooth, hyaline or nearly so, 3–4 μ.

Occasional throughout on living trunks of alder, laurel, and a few other deciduous trees, causing serious decay. The punky substance of the hymenophore was formerly used in tinder-boxes, and is still used as an absorbent in surgery and for the manufacture of various ornamental and useful articles.

24. ELFVINGIA P. Karst.

Hymenophore large, epixylous, sessile, applanate or ungulate; surface sulcate, horny-encrusted; context brown, punky; tubes brown, cylindric, stratose, thick-walled, mouths whitish or yellowish when young; spores brown; conidia present in most species on or near the surface of the pileus.

Pileus white or gray, often becoming brown with age.	
Hymenium white or rarely slightly yellowish when young.	1. *E. megaloma.*
Hymenium luteous when young.	2. *E. Brownii.*
Pileus brown to black; hymenium pallid when young.	3. *E. tornata.*

1. ELFVINGIA MEGALOMA (Lév.) Murrill

Pileus hard, dimidiate, applanate, 6–15 × 8–30 × 1–4 cm.; surface milk-white to gray or umbrinous, glabrous, concentrically sulcate, encrusted, fasciate with obscure lines, conidia-bearing, usually brownish during the growing season from the covering

of conidia; margin obtuse, broadly sterile, white or slightly cremeous, entire to undulate; context corky, usually rather hard, zonate, fulvous to bay, 5–10 mm. thick, thinner with age; tubes very evenly stratified, separated by thin layers of context, 5–10 mm. long each season, avellaneous to umbrinous within, mouths circular, 5 to a mm., whitish-stuffed when young, edges obtuse, entire, white or slightly yellowish to umbrinous, quickly changing color when bruised; spores ovoid, smooth or very slightly roughened, pale-yellowish-brown, truncate at the base, 7–8 × 5–6 μ.

Very common throughout on dead or diseased trunks of oak, willow, alder, and many other deciduous trees, as well as on conifers in certain sections, causing decay of the sapwood and exposed heartwood. The immense hymenophores are often used by amateur artists for etching.

2. ELFVINGIA BROWNII Murrill, sp. nov.

Pileus encrusted, very hard, dimidiate, applanate, broadly attached, subimbricate, 8–10 × 15–25 × 3–4 cm.; surface gray to brown, glabrous, concentrically sulcate, rather uneven, margin very obtuse, broadly sterile, luteous, subentire; context almost woody, zonate, bay, about 3 cm. thick, thinner with age; tubes 5–8 mm. long each season, avellaneous to dark-umbrinous within, mouths minute, circular, about 5 to a mm., luteous-stuffed when young, edges obtuse, entire; spores broadly ellipsoid, slightly roughened, brown, uniguttulate, truncate at one end, thick-walled, 8–9 × 7 μ.

Type collected on decaying logs of *Umbellularia* in Strawberry Canyon, University of California campus, Berkeley, California, September 27, 1913, *V. S. Brown 307* (herb. N. Y. Bot. Gard.). Also collected in a younger stage at the same place on the same host, September 12, 1913, *V. S. Brown 306*. This species resembles *E. megaloma* in habit and appearance, but the hymenium is luteous instead of white when young.

3. ELFVINGIA TORNATA (Pers.) Murrill

Pileus hard, dimidiate, sessile or spuriously stipitate, applanate, thin, very large, plane below, 10–20 × 15–30 × 1–5 cm.; surface horny-encrusted, sulcate, glabrous, slightly tuberculose, conidia-bearing, opaque to subshining, often fasciate with black bands, subspadiceous to fulvous; margin smooth, sterile, often laccate,

subacute, often becoming truncate; context floccose with harder fibers, zonate, fulvous to bay, with whitish markings in old specimens, 5–10 mm. thick, very thin in large specimens; tubes indistinctly stratified, 5–8 mm. long each season, not separated by layers of context, dark-umbrinous within, mouths circular, not stuffed when young, often covered near the margin with resin, 4 to a mm., edges obtuse to acute, entire, pallid to umbrinous; spores broadly ellipsoid, truncate, very dark yellowish-brown, abundantly and roughly echinulate, 7–8 × 5–6 μ.

What appears to be an old and very thick form of this species was found on *Quercus agrifolia* and *Umbellularia* in Wild Cat Canyon, near Berkeley, California, November 14, 1913, by V. S. Brown. Younger specimens are desired. *E. tornata* is abundant throughout the tropics on decayed logs and stumps.

25. GANODERMA P. Karst.

Hymenophore large, sessile or stipitate, perennial or annual, epixylous; surface sulcate, covered with reddish-brown varnish; context punky, brown or pallid; tubes cylindric, concolorous; spores ovoid, brown.

Species found on conifers; context white or nearly so, except near the tubes.	
Hymenophore stipitate.	1. *G. oregonense.*
Hymenophore sessile.	2. *G. Sequoiae.*
Species found on deciduous trees; context ochraceous to isabelline above, tawny next to the tubes.	3. *G. polychromum.*

1. GANODERMA OREGONENSE Murrill

Pileus reniform, corky, rigid, convex above, plane below, 10 × 17 × 5 cm.; surface glabrous, thinly encrusted, smooth, laccate, very lustrous, bay to black, with a deep groove near the margin, which is cream-colored, rounded, smooth, entire, finely tomentose; context punky, white to slightly discolored, homogeneous, with white lines of mycelium near the stipe, 2–3.5 cm. thick; tubes annual, 1 cm. long, avellaneous within, mouths circular to angular, 3 to a mm., edges thin, entire, white to avellaneous; stipe lateral, very thick, short, subcylindric, 2–4 cm. long, 3–6 cm. thick, expanding into the pileus, which it resembles in color, surface, and context.

Occasional on coniferous trunks in Washington and Oregon.

2. GANODERMA SEQUOIAE Murrill

Pileus soft, tough, dimidiate, compressed-ungulate, subimbricate, convex above, concave below, 8 × 14 × 5 cm.; surface at length glabrous, laccate, thinly encrusted, very uneven, undulate, concentrically sulcate near the margin, shining-bay to nearly black; margin ochraceous, smooth, undulate, subacute; context punky, homogeneous, cremeous above, fulvous immediately adjoining the tubes, 2 cm. thick behind; tubes indistinctly stratified, 5–20 mm. long, grayish-fuscous to fulvous within, mouths circular to angular, rather large, irregular, 1–2 to a mm., edges thin, entire, cremeous to umbrinous, chestnut-colored when bruised.

Found once on a redwood trunk in California.

3. GANODERMA POLYCHROMUM (Copeland) Murrill

Hymenophore solitary or superimposed; pileus reniform, soft, 4 × 6 × 1–2 cm.; surface glabrous, thinly encrusted, azonate, uneven, laccate, sublustrous, fulvous to bay; margin obtuse, cremeous, sterile, uneven; context fulvous, darker below, homogeneous, punky, slightly zonate, 1 cm. thick; tubes annual, 5–10 mm. long, avellaneous within, mouths large, angular, irregular, 2–4 to a mm., edges thin, uneven, greenish-white to grayish-fuscous; spores obovate, subfuscous, 7–10 μ.

Found a few times on decayed trunks of oak, willow, and *Schinus* in California.

26. CERRENA (Micheli) S. F. Gray

Hymenophore small, epixylous, sessile, conchate, annual; surface anoderm, hairy or subglabrous, zonate or sulcate; context thin, white, fibrous, flexible; hymenium at first labyrinthiform, soon becoming irpiciform from the splitting of the dissepiments; spores smooth, hyaline.

1. CERRENA UNICOLOR (Bull.) Murrill

Pileus coriaceous, sessile, imbricate, dimidiate to flabelliform, conchate, often laterally confluent, 2.5–3.5 × 5–10 × 0.1–0.3 cm.; surface villose-strigose, rugose, zonate, plicate, isabelline to fulvous, becoming avellaneous with age and blackish and nearly glabrous behind; margin acute, undulate to lobed, paler, zonate, strigose-tomentose; context very thin, membranous, white, homogeneous, scarcely 1 mm. thick; tubes decurrent, labyrinthiform, 1–3 mm. long, white or isabelline to fuliginous or

umbrinous, averaging 2 to a mm., edges acute, uneven, soon becoming dentate-lacerate, giving the hymenium an irpiciform appearance; spores ovoid, smooth, hyaline, 4–6 × 3–4 μ.

Reported by Harkness as common in California. It occurs usually on dead deciduous wood, and rarely on coniferous wood. This species has recently been found in Europe to be parasitic on horsechestnut, beech, black locust, and red maple.

27. DAEDALEA Pers.

Hymenophore epixylous, usually large and annual, sessile, applanate to ungulate; surface anoderm, glabrous, often zonate; context white or wood-colored, rigid, woody or punky; hymenium normally labyrinthiform, but varying to lamellate and porose in some species; spores smooth, hyaline.

Pileus thick, triangular, margin obtuse. 1. *D. quercina.*
Pileus thin, applanate, margin thin. 2. *D. confragosa.*

1. DAEDALEA QUERCINA (L.) Pers.

Pileus corky, rigid, dimidiate, sessile, imbricate, applanate, convex below, triangular in section, 6–12 × 9–20 × 2–4 cm.; surface isabelline-avellaneous to cinereous or smoky-black with age, slightly sulcate, zonate at times, tuberculose to colliculose in the older portions; margin usually thin, pallid, glabrous; context isabelline, soft-corky, homogeneous, 5–7 mm. thick; tubes labyrinthiform, becoming nearly lamellate with age in some specimens, 1–2 cm. long, 1–2 mm. broad, chalk-white or discolored within, edges obtuse, entire, ochraceous to avellaneous.

Reported by Harkness as occurring on oak in California.

2. DAEDALEA CONFRAGOSA (Bolt.) Pers.

Pileus corky to woody, imbricate, sessile, dimidiate, convex or plane above, variable in size, 2–7 × 3–10 × 0.5–1.5 cm.; surface multizonate, rugose, scrupose, often tuberculose, becoming glabrous, isabelline or avellaneous to latericeous-fuscous; margin thin, entire to lobed, pallid, fertile, dark-brown when bruised; context corky to woody, white to avellaneous, zonate, 3–10 mm. thick; tubes very variable, porose or labyrinthiform, often becoming lamellate with age, 0.5–1.5 mm. broad, 5–10 mm. deep, white or avellaneous within, mouths grayish-pruinose when young, becoming umbrinous or reddish-fuscous, edges thin, becoming lacerate-dentate and often fimbriate, turning at

once to yellowish-brown when bruised; spores smooth, hyaline, cylindric to ellipsoid, 5–8 × 2–3 μ.

Reported from California by Harkness.

28. LENZITES Fries

Hymenophore small, annual, epixylous, sessile, conchate; surface anoderm, usually zonate and tomentose; context white, coriaceous, flexible; hymenium lamellate, the radiating gill-like dissepiments connected transversely at times, especially in youth; spores smooth, hyaline.

1. LENZITES BETULINA (L.) Fries

Pileus thin, coriaceous, sessile, dimidiate to flabelliform, imbricate, conchate, 3–4 × 4–7 × 0.3–1 cm.; surface conspicuously tomentose, velvety, multizonate, somewhat uneven, often radiate-rugose to plicate, avellaneous with latericeous zones, becoming olivaceous with age; margin thin, undulate to lobed at times; context very thin, white, membranous, scarcely a mm. thick; furrows slightly anastomosing when very young, 1–2 mm. broad, 3–10 mm. deep, edges thin, entire to undulate, slightly notched with age, cremeous within, ochroleucous to sordid-ochraceous without; spores globose, smooth, hyaline, 6 μ.

Common in California on decayed wood of oak, alder, and other deciduous trees. It may be expected also on coniferous wood at times.

29. GLOEOPHYLLUM P. Karst.

Hymenophore small, annual, epixylous, sessile; surface hairy or glabrous, anoderm, often zonate; context tough, brown; hymenium normally lamelloid or daedaleoid, but frequently poroid in some species; spores smooth, hyaline.

1. GLOEOPHYLLUM HIRSUTUM (Schaeff.) Murrill

Pileus hard, corky to woody, slightly flexible, imbricate, sessile, laterally connate, often decurrent, oblong-dimidiate to flabelliform, conchate, 2–3 × 4–8 × 0.3–1 cm.; surface zonate, strigose-tomentose, anoderm, rather uneven, reddish-fulvous to fuliginous or umbrinous; margin rather thick, sterile, isabelline, undulate, finely tomentose, becoming acute and darker in age; context soft-corky, homogeneous, fulvous, about 2 mm. thick; tubes usually lamelloid, anastomosing when young, ochraceous to grayish-umbrinous, 0.5–1 mm. broad, 2–5 mm. deep, edges thin, undulate; in a poroid variety, tubes circular, regular, 2 to

a mm., edges thick, firm, entire; spores ellipsoid, smooth, hyaline, 8–12 × 3–4 μ.

Occasional in Oregon and reported also from California. It is very destructive to coniferous timber, and sometimes causes heart-rot in living trunks.

SUPPLEMENTARY NOTES

Fulvifomes juniperinus (Schrenk) Murrill was recently found by Meinecke on *Juniperus occidentalis* in Nevada County, California. This collection represents the form described as *Pyropolyporus Earlei*. The species may be readily recognized by its reddish-brown context.

Two or three interesting new species just received from the Pacific coast will shortly be described in *Mycologia*. Further collecting will undoubtedly add other novelties to this group, besides extending the range of species already known. It is also desirable, if possible, to account for several species reported by Harkness but not since collected.

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